DETAILED ACTION

Status

1. Acknowledgment is made of the arguments filed on 2/26/2010. Claims 7-9 and 11-21 are currently pending, with claims 7-9 are currently under examination and claims 11-21 withdrawn as being drawn to nonelected inventions.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ryding et al. (US Patent No. 6,689,221, Ryding hereinafter) in view of Cuijpers et al. (US Patent No. 6,473,161, hereinafter Cuijpers).

Regarding claim 7, Ryding discloses a substrate mount portion (electrostatic chuck (ESC) 108 with support surface 110 and cooling plate 111, Figs. 1-4) for holding the substrate (Figs. 1-4, electrostatic chuck 108 holds wafer 101);

a spindle (spindle 114, Figs. 1-4) for rotating the substrate mount portion (Figs. 1-4, spindle 114 is coupled to motor 124 to rotate the spindle and ESC 108),

a conduit pipe (fluid lines 121, Figs. 1-3) for supplying cooling fluid through the bearing portion and the spindle to the substrate mount portion (Figs. 1-3 and col. 4, lines 23-34, fluid lines 121 extend through spindle 114 and connect into cooling plate

111 from a source external to housing 102, thus the fluid lines 121 extend through the bearing portion). However, Ryding does not appear to explicitly describe a fluid bearing portion for holding the spindle.

However, Cuijpers discloses a fluid bearing portion for holding the spindle (Figs. 4-7, gas bearings 111 and 133 hold piston 101).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have replaced a fluid bearing portion for holding the spindle as taught by Cuijpers in the place of the bearings holding the spindle and substrate mount portion taught by Ryding since, as shown by Cuijpers, a fluid bearing is commonly used to hold a spindle in order to provide a frictionless movement between two structures (col. 2, lines 23-25).

Regarding claim 8, although Ryding discloses cooling fluid supplied to a conduit pipe provided in the spindle (Figs. 1-3, and col. 4, lines 23-34, cooling fluid is supplied to fluid lines 121 in spindle 114), Ryding does not appear to explicitly describe wherein the spindle has a groove portion through which the cooling fluid supplied through the fluid bearing portion is taken into the conduit pipe.

However, Cuijpers discloses wherein the spindle has a groove portion (pressure chamber 122, Figs. 4-7) through which the fluid supplied through the fluid bearing portion is taken into the conduit pipe provided in the spindle (Figs. 4-7, pressure chamber 122 provides gas from gas bearing 111 to channels 105 in piston 101).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have included a groove portion through which fluid is supplied to the conduit

pipe as taught by Cuijpers in the spindle and substrate mount portion taught by Ryding since, as shown by Cuijpers, a groove portion through which fluid is supplied to the conduit pipe through the fluid bearing portion is commonly used to minimize pressure fluctuations in the fluid bearing that may be transferred to the conduit pipe, thereby providing a buffer to ensure optimal cooling.

Regarding claim 9, Ryding discloses a cooling fluid supply portion (not shown, cooling fluid source, see col. 4, lines 23-34) and a cooling fluid supply conduit pipe (portion of fluid lines 121 extending though the bottom of housing 112 from spindle 114, Figs. 1-3) for supplying cooling fluid from the cooling fluid supply portion to the conduit pipe provided in the spindle (Figs. 1-3, and col. 4, lines 23-34, cooling fluid is supplied to fluid lines 121 in spindle 114).

Response to Arguments

4. Applicant's arguments filed 2/26/2010 have been fully considered but they are not persuasive.

Applicant argues that Ryding in view of Cuijpers does not disclose or teach "a conduit pipe for supplying cooling fluid through the fluid bearing portion and the spindle to the substrate mount portion." However, the examiner respectfully disagrees since as discussed above and in the Office Action dated December 3, 2009, Cuijpers discloses a fluid bearing portion for holding the spindle (Figs. 4-7, gas bearings 111 and 133 hold piston 101) and Ryding teaches a conduit pipe for supplying cooling fluid through the bearing portion and the spindle to the substrate mount portion (Figs. 1-3 and col. 4,

lines 23-34, fluid lines 121 extend through spindle 114 and connect into cooling plate 111 from a source external to housing 102; thus, since the fluid lines 121 extend through spindle 114 and into cooling plate 11, the fluid lines 121 extend through the bearing portion, which includes bearings 126 that support spindle 114). The bearings holding the spindle and substrate mount portion as taught by Ryding could have been modified by replacing the bearings of Ryding with the fluid bearing portion as taught by Cuijpers by one of ordinary skill in the art at the time of the invention since a fluid bearing is commonly used to hold a spindle in order to provide a frictionless movement between two structures (Cuijpers, col. 2, lines 23-25). Consequently, the combination of Ryding in view of Cuijpers does disclose the claimed limitation of "a conduit pipe for supplying cooling fluid through the fluid bearing portion and the spindle to the substrate mount portion." In response to applicant's argument that the references fail to show certain features of applicant's invention as discussed on pages 2-3 of Applicant's arguments, it is noted that the features upon which applicant relies (i.e., utilizing the supplied gas for cooling) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Instead, the claim recites "a conduit pipe for supplying cooling fluid through the fluid bearing portion and the spindle to the substrate mount portion," which does not require the cooling fluid to be utilized as the fluid in the bearing, only that the cooling fluid be supplied through the fluid bearing portion. The combination of Ryding as modified by Cuijpers does teach a conduit pipe for supplying cooling fluid through the

fluid bearing since Ryding teaches a conduit pipe (fluid lines, 121 Figs. 1-3) and Cuijpers teaches a fluid bearing (Figs. 4-7, gas bearings 111 and 133 hold piston 101). Therefore, Applicant's arguments have been fully considered, but they have not been found to be persuasive and claims 7-9 remain rejected under Ryding in view of Cuijpers.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lasch, Jr. et al. (US Patent No. 3,930,684) discloses a pre-aligner for a wafer that rotates the wafer and includes a fluid bearing.

Philips (US Patent No. 4,676,649) discloses a rotatable wafer support with gas bearings.

Aschner et al. (US Patent No. 6,005,226) discloses a rotating shaft and a rotating wafer holder supported by gas.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Riddle whose telephone number is (571)270-7538. The examiner can normally be reached on Monday- Thursday 7:00-17:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on (571)272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Peter B. Kim/
Primary Examiner, Art Unit 2882

/C. R./
Examiner, Art Unit 2882